REMARKS

Claims 1-9 are pending in the present application. To overcome the Examiner's objection relative to claims 1-9, claims 1 and 2 have been amended based upon the suggestion of the Examiner.

It should now be clear that the reduced reference beam is reflected toward incident locations wherein the incident locations correspond to the selected portions of the reference beam on the lens and are spaced apart from each other by a certain degree for separating the holographic recording of each page. Accordingly, the objection to claims 1-9 should be withdrawn.

Reconsideration of the present application is respectfully requested for the following reasons:

Rejection of claim 1-2, 7-8 and newly added claim 9 under 35 U.S.C. 103(a) as being unpatentable over Goulanian et al (US 2005/0122549 A1) in view of Tanaka et al. (US 6,256,281)

The rejection of claims 1-2, 7-8 and newly added claim 9 under 35 U.S.C. 103(a) as being unpatentable over Goulanian et al (US 2005/0122549 A1) in view of Tanaka et al. (US 6,256,281) has been carefully considered but is most respectfully traversed.

Applicant wishes to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP §2143.

This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Further, MPEP §2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

This rejection is respectfully traversed on the grounds that a prima facie case of obviousness of the amended claims is not been established.

The present invention is related to a holographic digital data storage system which records a plurality of holographic pages in a same spatial location by reducing the size of a reference beam and changing an angle of incidence of the reference beam on a storage medium.

In accordance with the present invention, the refracted angles of the reduced reference beam after passing through a lens 216 to the storage medium 230 are changed by changing each incident location of the reduced reference beam on the lens 216 which satisfies the angular selectivity. Therefore, by storing a great number of holograms of binary data in the same spatial location in the storage medium on a page-by-page basis by using the reference beam which is a spherical wave, the present invention is capable of increasing recording density.

As shown in Fig. 3, a plane wave (reference beam PS1 from the beam splitter 204) becomes a spherical wave after passing through a lens 216 with a different refracted angle which satisfies the angular selectivity. By using the spherical wave, angular multiplexing and shifting multiplexing can be achieved and it is possible to increase the recording density of the storage medium.

On the other hand, Goulanian et al. teaches methods and apparatuses for forming holograms of any object with preserving 3-D characteristics by optical techniques controlled by a computer in accordance with three-dimensional data representing the objects in a computer database and recording their three-dimensional images. As shown in Figs. 7 and 8, a reference beam 74 becomes a

spherical wave after passing through a focusing lens 85. However, the reference beam 89 finally becomes a plane wave after passing through a collimating lens 88. Further, in accordance with the paragraph [0198], the ensemble of the optical means is intended for changing the reference beam in size and parallel shifting the reference beam 74 with respect to itself and an axis of collimating lens 88 and orienting it in an established direction to provide complete coverage by the reference beam. Therefore, since the plane wave 89 shifts with respect to the axis of collimating lens 88, an angle of incidence of the reference beam 89 on the recording medium 50 is maintained constant. (See each incident angle of the reference beam 89 to the areas 51 and 58 of the recording medium 89 in Fig 8). Since Goulanian uses a plane wave as a reference beam; and each angle of incidence of the reference beam on the recording medium is identical, various holographic pages can not be recorded in a same spatial location. Accordingly, angular multiplexing and shifting multiplexing can not be achieved by Goulanian. Further, Goulanian does not intend to increase recording density; and it does not teach nor imply to store a great number of holograms of binary data in the same spatial location in the storage medium on a page-by-page basis by using the reference beam which is a spherical.

On the contrary, in accordance with the present invention, more reduced reference beam having different incident location can be projected into the lens, with the angular selectivity being satisfied, to record various holograms in a same spatial location.

Furthermore, although a SLM is arranged in an optical path of the signal beam optical system in Tanaka et al., Tanaka also uses a plane wave to record various holograms. Since Tanaka only discloses the spatial multiplexing but does not suggest the shift multiplexing with a spherical wave using a lens, applicant most respectfully submits that additional teachings of Tanaka do not overcome the deficiencies of the primary reference as discussed above and the rejections should be withdrawn.

As a result, one of ordinary skill in the art at the time of the invention would not have been motivated to combine the teachings of Goulanian with Tanaka for angular multiplexing and shift multiplexing using a spherical wave as a reference beam. Accordingly, the applicant respectfully submits that the amended claims 1 and 2 are allowable over the references cited.

It is also believed that claims 7 and 8 directly depending on the amended claim 1 are allowable for the same reasons indicated with respect to the amended claim 1.

Rejection of claims 3-6 under 35 U.S.C. 103(a) as being unpatentable over Goulanian et al and Tanaka et al in view of Hays et al (PN. 5,777,760)

It is also believed that claims 3-6 directly or indirectly depending on the amended claim 1 are allowable for the same reasons indicated with respect to the amended claim 1, and further because of the additional features recited therein which, when taken alone and/or in combination with the features recited in the

amended claim 1 remove the invention defined therein further from the disclosures made in the prior art references.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

CONCLUSION

Applicant believes that this is a full and complete response to the Office Action. For the reasons discussed above, applicant now respectfully submits that all of the pending claims are in complete condition for allowance. Accordingly, it is respectfully requested that the Examiner's rejections be withdrawn; and that claims 1-9 be allowed in their present form.

Alternatively, should the Examiner have any additional questions or feel that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned.

Respectfully submitted
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Dated: December 1, 2005

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CERTIFICATE OF MAILING

I hereby certify that this *AMENDMENT* is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on December 1, 2005.

Audrey De Souza (Typed or printed name of person mailing paper or fee)

_____ (Signature of person mailing paper or fee